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IDAHO ANADROMOUS FISHERY HABITAT PROGRAM

INTERMOUNTAIN REGION

FEBRUARY 1979

NORTHERN REGION

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INTRODUCTION

This program is a cooperative adventure between the National Forests, the State of Idaho, and Idaho Fish and Game Department and is designed to develop positive and aggressive anadromous fish habitat management for the Snake River and all tributary waters within the Intermountain and Northern Regions of the Forest Service.

The Upper Snake River Basin principally consists of the main stem Snake River and its major tributary waters the Clearwater and Salmon Rivers. Approximately 3,358 miles of Idaho's streams are available to anadromous fish. The Snake River has 108 miles presently available while the Clearwater and Salmon systems contain 1,248 and 1,920 miles respectively that are available to anadromous fish.

Eight National Forests of R-1 and R-4 have upriver anadromous fish resources. Northern Region Forests are:

Clearwater
Nezperce
Bitterroot

and Intermountain Region Forests are:

Payette
Boise
Salmon
Challis
Sawtooth

Special emphasis to anadromous fish management was granted by Congress when the SNRA was established in 1972. The enabling legislation directed that priority management would be given to preserving the anadromous fish resource of the area.

Recent attention highlighted the importance of the anadromous fishery resource in decisions on the South Fork Salmon Land Management Plan (Boise) and Gospel Hump (Nezperce).

HISTORICAL PERSPECTIVE

There are five species of Pacific salmon native to the fresh waters of the Pacific Northwest. The present distribution of these salmon extends from central California stream courses north to the Bering Sea and the Artic Ocean rivers.

In the West Coast streams and lakes, there are three recognized species of trout and char which have anadromous forms and which are highly esteemed for their angling qualities.

These species are:

Chinook	rainbow
coho	cutthroat
pink	Dolly Varden
sockeye	chum

All of the salmonids have a common mode of reproduction in the fresh water environment and differ, generally speaking, only in their fresh water residency requirements. Some of these species also have forms which never migrate to sea and are termed "residents." A well known example is the rainbow trout and its sea-going form, the steelhead. Sensitive habitats for salmonids include spawning and rearing habitats. Fish passage is a major consideration in managing anadromous forms of these species.

Historically, the Snake River and its tributaries in the State of Idaho provided some of the highest quality spawning and rearing habitat for anadromous fish in the Columbia River system. Once these migrant fish stocks were destined to travel over 800 miles to headwater spawning grounds on a journey relatively free of obstructions. Now both fish passage and critical life cycle phases necessary to their existence are inhibited by Columbia and Snake River dams and degradations of habitat conditions in the headwaters. It has been estimated by Idaho Dept. of Fish and Game that over 40 percent of anadromous fish habitat acres in Idaho have been lost.

Due to habitat problems throughout the Columbia River system, the past 3 years represent the lowest return runs to Idaho of anadromous stocks in history. Existing dams, water diversions, and conflicting water uses all adversely affect the fishery. Due to the low return runs, Idaho had closed seasons during 1975 and 1976 for angling for salmon and steelhead.

IDAHO SITUATION

Anadromous fish runs into Idaho include coho, spring chinook, summer chinook, fall chinook, sockeye, and summer steelhead.

The Salmon River, with its headwater tributaries, is the major producer of anadromous fish in Idaho. Runs to the Clearwater River are low now, but should be productive in later years. Coho and fall chinook spawn in the main stem Snake River below Hells Canyon Dam. The Hells Canyon National Recreation Area will encompass the Idaho habitat of these fishes. They are impacted by streamflow regulation.

Summer steelhead are found throughout the Snake River system and the outlook is not good. Current production is well below the potential capacity. The opportunities exist for substantial recovery.

Sockeye, which spawn in Redfish Lake, can be considered as a remnant species near extinction in the Snake River Basin. Reintroduction to protected and restored Idaho habitats could stimulate future run recovery.

The once productive upriver spring chinook run is in precarious condition although these fish have shown amazing resiliency in face of devastating mortalities. There is good potential for substantial run recovery and rehabilitation if past habitat and passage losses are compensated.

Summer chinook have been the most severely affected of the chinook by destruction and degradation of habitat and mortalities at dams. The outlook is not good although potential exists for recovery. This fish is being evaluated for endangered classification under authority of the U.S. Endangered Species law.

The Salmon River produces 98 percent of the sport fishery harvest of chinook salmon in Idaho. The steelhead harvest in Idaho by river is: Salmon - 50 percent; Clearwater - 35 percent; and Snake - 15 percent.

BASIC ASSUMPTIONS

National Forest lands comprise the bulk of anadromous fish habitat in the Upper Snake River basin.

Anadromous fish production will continue to provide economic value to both recreational sport fishing and commercial fisheries on-site and off-site.

Anadromous fisheries management will require greater efforts to protect and manage spawning habitats and associated watersheds.

Downstream migrants will be barged through mainstem dams and reservoirs to the lower Columbia River.

Harvest regulations and passage at dams will be managed by State and Federal agencies to increase adult escapement to upriver habitats.

Endangered-threatened status under Federal law will be evaluated for upriver runs of anadromous fish.

Research results will come from the Anadromous Fish Habitat Program for the Western U.S.

GOALS

The goals of this program are to assure that Idaho National Forests manage their anadromous fish resources in a positive manner that supports to the extent possible the efforts of other agencies interested in this unique resource through a program that:

a. provides for a substantial increase in habitat management.

b. improves organization and financing to properly accomplish Forest Service responsibilities for anadromous fish habitat management.

c. improves planning, coordination and interagency cooperation in anadromous fish habitat management.

Objectives would be accomplished in three phases which may be concurrent in some instances. Phase I objectives are to synthesize knowledge, display habitat criteria, and sensitize and inform Forest Service personnel. Phase II objectives are to apply direct habitat improvement measures and improve habitat protection. Phase III is to increase habitat capacity toward attaining potential levels.

The program will be coordinated with research activities of the Forest Service and cooperating agencies.

A PLAN FOR IDAHO NATIONAL FORESTS WITH ANADROMOUS RESOURCES

GOAL

The goal of this program is to assure that Idaho National Forests manage their anadromous fish resources in a positive manner that supports to the extent possible the programs of other agencies interested in this unique resource.

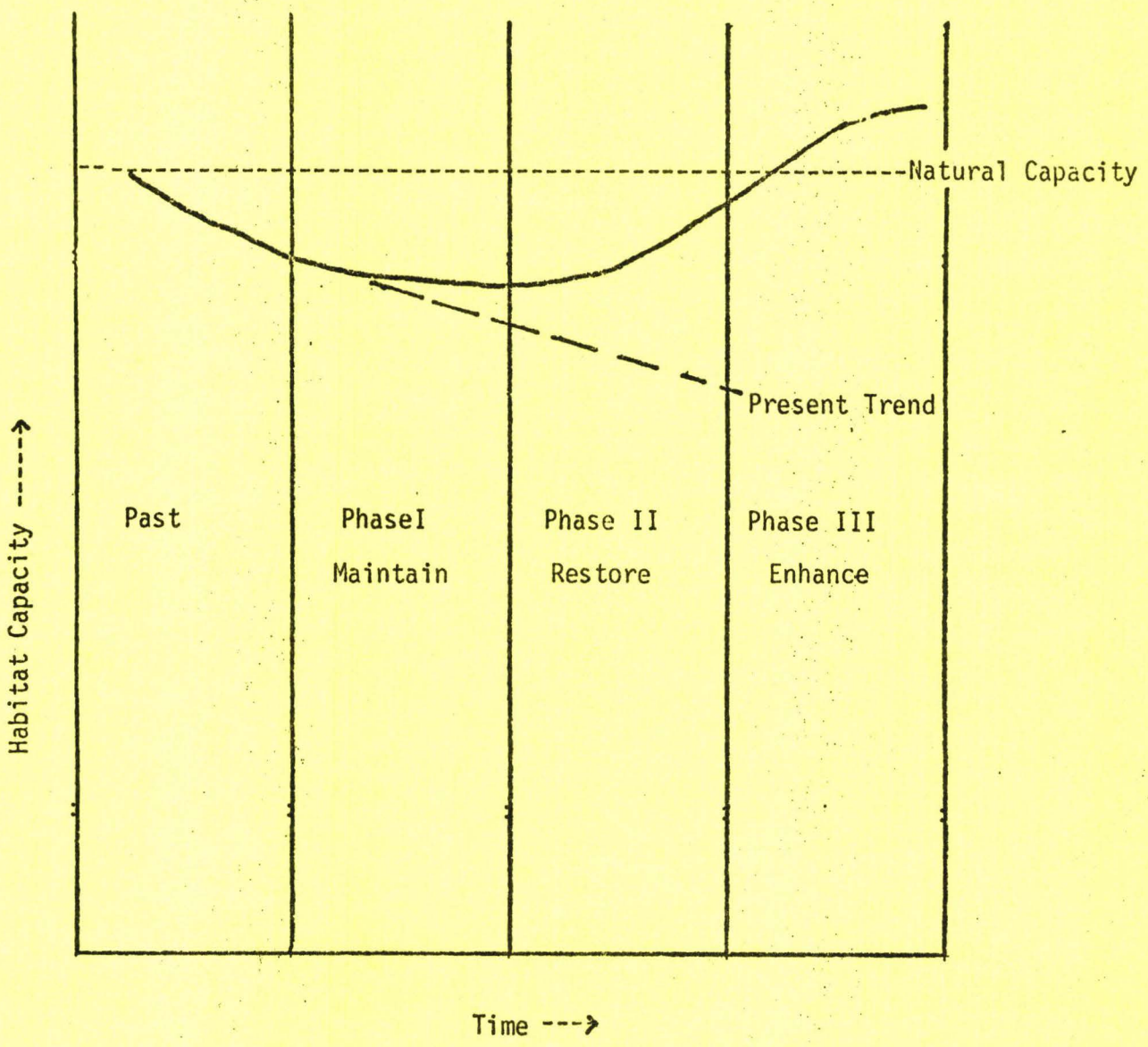
OBJECTIVES

The program is designed to improve management of Idaho National Forests anadromous fish habitat. Objectives would be achieved in three phases which may be concurrent in some instances.

Phase I objectives are to synthesize present knowledge; display criteria for optimum and acceptable spawning habitat; display criteria for rearing habitat; display and apply land use/habitat relationships; provide for Idaho Fish & Game Department cooperation; sensitize and inform Forest Service personnel and determine research needs.

Phase II objectives are to determine in-stream flow needs; determine diversion screening needs; apply direct habitat improvement measures and improve habitat protection measures.

Phase III objective at this time is limited to increasing the habitat capacity above natural levels.


Natural Capacity
Present Trend
Habitat Capacity ----->
Past
PhaseI
Maintain
Phase II
Restore
Phase III
Enhance
Time --->

PLANNING STRUCTURE

A. Planning Structure

This program has been planned in close relationship to the Proposed Anadromous Fish Habitat Program for the Western United States. While the forementioned has a large research base, the proposed Idaho Anadromous Fish Habitat Program is designed as an action program for the various National Forest System units in Idaho.

A systems approach has been used. It follows a "Convergence Planning Technique" which uses some of the features of network analysis, but does not require the certainty of achievement or a rigid time schedule. It involves creating goals, objectives and a series of flows and arrays with decision points, phases and individual activities. The program is sequentially developed with a flow of activities which are designed to meet the program objectives. Successful completion of all phases would result in a "convergence" of achievement which would make possible the realization of the program objectives.

Within each phase, each activity is assigned to either a lead array or a supplementary array:

Lead Array: The main effort -- includes the activities considered most plausible for making the phase successful in Idaho.

Supplementary Array : Includes activities for which the probability of their contributing positively to the phase objective is unknown or presently considered less vital than activities in the lead array.

The Activity Schedule is the basis for the program plan. It provides a basis for: (1) information needed for budget summarization and activity screening or selection; (2) considering the impact of different funding levels for the program; (3) an implicit statement of accomplishment expected from the program; and (4) identifying milestones in the program's development and evaluating the progress of the program.

B. Program Proposal

The three program phases allow for program overlap, but are presented here in simplified form for better understanding.

The entire program is based on a long term duration (greater than 20 years) with an initial heavy involvement in coordination activities.

Phase I - Phase I is defined as "that period of time required to arrest the downward trend of anadromous fisheries habitat."

A threefold program will be conducted during this phase:

A. Synthesize available knowledge on anadromous fisheries management and available inventory data. Assemble the data in a format usable to land managers and disseminate it to the field.

B. Initiate an intensive training program to transfer "state of the art" knowledge to land managers, thus enabling them to apply improved techniques in on-going resource management programs.

C. Conduct needed inventories and studies in areas where existing inventories are inadequate for management needs.

The success of Phase I is dependent upon the commitment of the land manager in obtaining needed skills in fisheries habitat management -- and in applying this knowledge to avoid further habitat degradation in resource activities.

Good coordination among the Idaho Forests in conjunction with a strong commitment to these priorities will be necessary to complete Phase I within a projected five year timeframe.

Phase II - The second segment, Phase II, is defined as "that timeframe during which the fisheries habitat is restored to original or natural levels." In this approach, we do not suggest that each National Forest stream be restored to original habitat levels, but rather that total National Forest habitat levels be restored to "original capacity." By this concept, we suggest that it is more efficient to improve some streams to a greater than normal capacity through accepted habitat improvement practices, rather than to expend extraordinary sums reclaiming some habitat.

Phase II time duration is dependent upon budget allocations and agreement of what original levels were

Phase III - The final segment, Phase III, is defined as "enhancement of the habitat beyond its original capacity level to allow for production to meet increased demands."

The Idaho Fish & Game Dept. has proposed a target of 85,000 summer run steelhead by 1990. If the Forest Service is to provide habitat for a portion of this and other projected population, some enhancement above natural levels may be necessary.

Also, during Phase III, an effort would be made to reclaim those more seriously depleted streams which were too expensive to restore under Phase II.

Included in Phase III is the continued maintenance of all anadromous fisheries habitat.

ACTIVITY FLOW

Decision Point I - Determine if a coordinated approach to the management of the anadromous habitat on Idaho National Forests is warranted.

Criteria

(1) Verify with unit managers that a problem or potential problem exists.

(2) If a problem exists it can best be resolved through formal coordination of the units managing the habitat rather than independent operations.

Phase I

Maintain the current habitat capacity by applying the existing knowledge and techniques to manage and protect the anadromous habitat with a professionally credible program.

Lead Array

1.1 Synthesize the present knowledge of anadromous fish species and their habitats.

1.1.1 Locate sources of information.

1.1.2 Correlate species abundance and habitat suitability.

1.1.3 Distribute the information.

1.1.4 Identify significant gaps in knowledge of habitat requirements.

1.2 Display criteria for optimum and acceptable habitat requirements of anadromous fish for spawning.

1.3 Display criteria for optimum and acceptable habiat requirements of anadromous fish for rearing.

1.4 Determine status of habitat and distribution of existing anadromous fish populations.

1.4.1 Consult known authorities, the literature, other sources or conduct field surveys.

1.4.2 Display occupied range and population structures.

1.4.3 Collate information on species distribution and numbers.

1.5 Display and apply known relationships of land uses with anadromous fish habitat.

1.5.1 Logging.

1.5.1.1 Define impacts of various logging systems on the physical characteristics of streams.

1.5.2 Road Construction.

1.5.2.1 Define impacts of road construction on the physical characteristics of streams.

1.5.2.2 Evaluate increase in sediment resulting from road construction and its impact on biological productivit of streams.

1.5.2.3 Evaluate effects of road construction on fish populations, including fish migration.

1.5.3 Livestock Grazing.

1.5.3.1 Define impacts of livestock grazing on physical characteristics of streams.

1.5.3.2 Evaluate production of sediment as a result of livestock grazing and its impact on biological productivity of streams.

1.5.3.3 Evaluate effects of livestock grazing on riparian vegetation.

1.5.3.4 Evaluate changes in quantity and regimen of streamflow as a result of livestock grazing.

1.5.3.5 Determine changes in amount of nitrogen, phosphorus, and potassium in water as a result of livestock grazing.

1.5.3.6 Ascertain changes in B.O.D. of streams as a result of streamside grazing by livestock.

1.5.3.7 Evaluate effects of livestock grazing on fish populations.

1.5.3.8 Determine effects of livestock grazing on invertebrate populations in streams.

1.5.3.9. Evaluate effects of livestock grazing on stream temperature.

1.6 Determine and provide for Idaho Fish & Game involvement as appropriate under their role statement and Cooperative Agreement.

1.7 Sensitise and inform Forest Service personnel, cooperators, and the public about the anadromous fish program and agency responsibilities.

1.7.1 Prepare and distribute training aids and I&E materials.

1.7.2 Plan and execute training through workshops, seminars, etc.

1.8 Determine research needs

Supplementary Array

1.9 Other land uses.

1.9.1 Evaluate effects of mining on water quality, streamflow, stream physical characteristics, stream invertebrate populations and fish populations.

1.9.2 Evaluate effects of fire management on water quality, dissolved oxygen, invertebrates, and fish populations.

1.9.3 Evaluate effects of recreational activities on water quality and fish populations.

1.9.4 Evaluate production of sediment from silvicultural activities, and its impact on biological productivity of streams.

1.9.5 Define the impacts on streams and biological populations of urbanization and water management.

1.10 Evaluate economic benefits of logging, road construction, livestock grazing, mining, recreation, etc., in relation to economic benefits of anadromous fish.

Decision Point II - Determine if there is a need to develop methodologies and to establish programs to restore and improve anadromous fish habitat to its natural capacity.

Criteria

(1) An established need for additional habitat capacity.

(2) Habitat investment decisions will be made on a resource wide basis (Idaho State).

Phase II

Restore and improve anadromous habitat to the natural capacity.

Lead Array

2.1 Determine in stream flow needs.

2.2 Determine diversion screening needs.

2.3 Apply direct habitat improvement measures.

2.3.1 Sediment entrapment and removal.

2.3.2 Removal of barriers.

2.3.3 Streambank stabilization.

2.3.4 Road closures and rehabilitations.

2.3.5 Road Surfacing.

2.4 Improve habitat protection measures.

2.4.1 Transportation planning.

2.4.2 Road survey and design.

2.4.3 Road construction and inspections.

2.4.4 Sediment entrapment techniques.

2.4.5 Sale layout and advanced logging systems.

FUNDING OPPORTUNITIES

The Phase I could be accomplished with present funding levels if we can apply existing knowledge in a more efficient manner. Additional funding would accelerate the time that the "available capacity" stops declining.

Phase II will require additional funding to improve or restore habitat; as will Phase III which will be aimed at habitat enhancement (creating capacity above the natural level).

Sources of funding would be from K.V., 080, National Marine Fisheries Service for habitat, maintenance, restoration, improvement and enhancement. For measures designed to protect the habitat the functional activity creating the impact would be responsible. The latter funding would increase above current levels because we have not done as complete a job of sedimentation prevention and/or minimization as is possible. For example, we have not created sediment traps to stop movement into streams, nor have we attempted removal of sediment that gets into the stream.

ORGANIZATION

The existing organization of the Forest Service could serve the needs of the Program. It could, however, cause a shift in emphasis on the part of Regional or Forest personnel in both Regions. Some alternatives for getting the job done include:

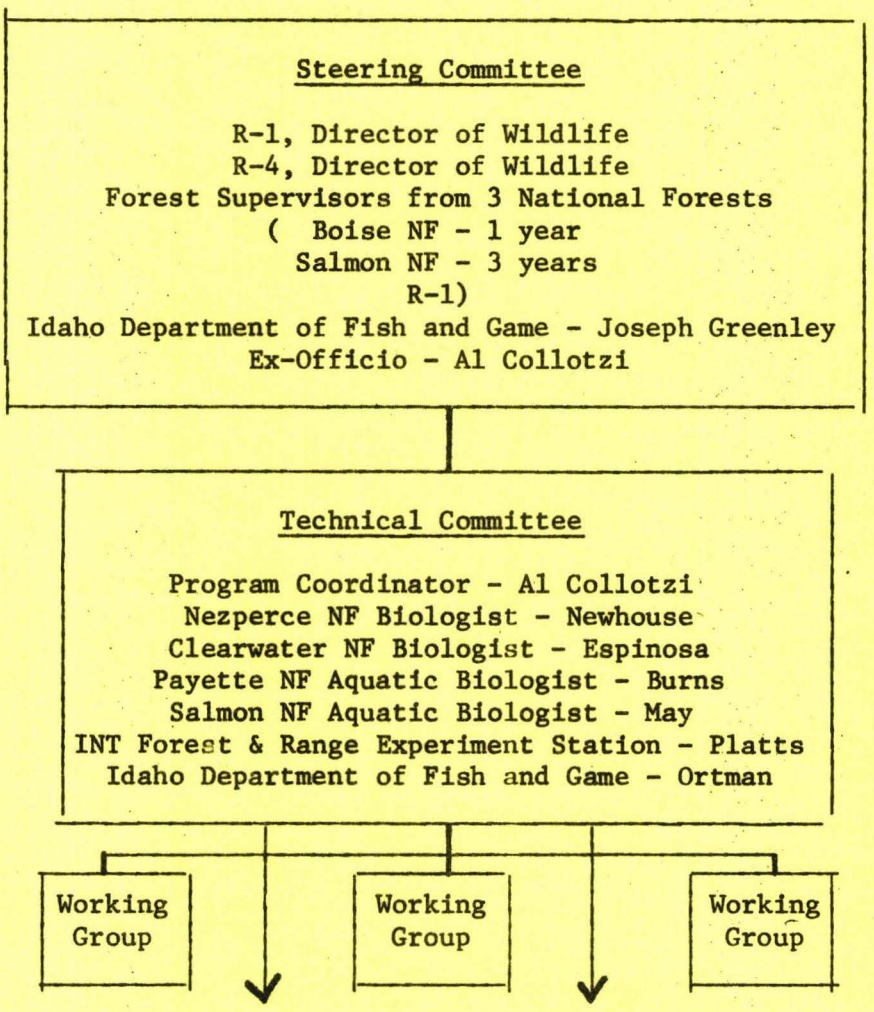
Alternative #1. Information synthesis and coordination done by Regional Offices, and provided to the field who then would operate independently.

Alternative #2. The Program would be carried out by field working groups from the appropriate National Forests in Idaho with assistance from the Regional Offices.

Alternative #3. Establishment of a steering committee to monitor the progress of the Program as implimented under either alternatives #1 or #2. The steering committee membership could be drawn from either line or staff positions in the Regional Offices or appropriate National Forests in Idaho.

UPPER SNAKE RIVER

ANADROMOUS FISH HABITAT ACTION PROGRAM


Steering Committee
R-1, Director of Wildlife
R-4, Director of Wildlife
Forest Supervisors from 3 National Forests
(Boise NF - 1 year
Salmon NF - 3 years
R-1)
Idaho Department of Fish and Game - Joseph Greenley
Ex-Officio - Al Collotzi
Technical Committee
Program Coordinator - Al Collotzi
Nezperce NF Biologist - Newhouse
Clearwater NF Biologist - Espinosa
Payette NF Aquatic Biologist - Burns
Salmon NF Aquatic Biologist - May
INT Forest & Range Experiment Station - Platts
Idaho Department of Fish and Game - Ortman
Working Group
Working Group
Working Group

Establish working groups as needed

Steering Committee Chairmanship will be:
1978 - R-4 Wildlife Director
1979 - R-1 Wildlife Director
1980 - R-4 Wildlife Director
1981 - R-1 Wildlife Director
1982 - R-4 Wildlife Director

Effective date of change will be at the Annual Idaho Affairs Meeting

IDAHO ANADROMOUS FISH PROGRAM

Role Statements

Steering Committee

1. Agree on priorities of work for the Idaho National Forests' Program for Anadromous Fisheries and integrate into Regional and National Forest Programs of Work.

2. Set dates for accomplishment.

3. Monitor accomplishment.

4. Keep the Idaho National Forest Anadromous Fishery Program current with knowledge and perceived needs and/or issues.

5. Appoint working group members.

6. Report accomplishments to the annual Idaho Affairs meeting.

Program Coordinator

1. Serves as Chairman of the Technical Committee.

2. Is accountable to the Steering Committee for accomplishment.

3. Works closely with eight National Forests and Idaho Department of Fish and Game to coordinate implementation of the program as scheduled by the Steering Committee.

4. Serves as ex-officio member of the Steering Committee.

5. Recommends and assembles working group memberships.

6. Represents Steering Committee with cooperators.

7. Disseminates new knowledge to field units.

8. Recommends scheduling of Program activities.

Technical Committee

1. Develop "Action Plan" for the PROGRAM.

2. Review and evaluate the technical accomplishment in meeting Program objectives.

3. Advise on working group memberships.

Working Group

1. An ad hoc group assigned to accomplish a specific element of the Program for the Technical Committee.

2. Prepares complete reports and furnishes to Technical Committee.

ORGANIZATION

Steering Committee

Mr. Joseph Greenley, Director Idaho Fish and Game Department, Member.

Mr. John Mumma, Director of Wildlife, Forest Service, Intermountain Region, Member, Chairman 1978.

Mr. Ed Schneegas, Director of Wildlife, Forest Service, Northern Region, Member, Chairman 1979.

Mr. Ed Maw, Forest Supervisor, Boise National Forest, Term expires March 1979.

Mr. Richard Hauff, Forest Supervisor, Salmon National Forest, Term expires 1981.

Mr. Don Biddison, Forest Supervisor, Nezperce National Forest, Indefinite term.

Technical Committee

Mr. David Ortmann, Anadromous Fish Coordinator, Idaho Fish & Game Dept.

Dr. William S. Platts, Fishery Scientist, Intermountain Forest & Range Experiment Station, Boise, Idaho.

Mr. Henry Newhouse, Fishery Biologist, Nezperce National Forest.

Mr. Fernanda A. Espinoza, Jr., Fishery Biologist, Clearwater National Forest.

Dr. David Burns, Aquatic Biologist, Payette National Forest.

Mr. Bruce May, Aquatic Biologist, Salmon National Forest.

Program Coordinator and Chairman of the Technical Committee

Mr. Albert W. Collotzi, Jr., Aquatic Ecologist, Forest Service, Intermountain Region.